

IN THE CLAIMS

1-12 (cancelled)

13.(new) A process for removal of sulfur from a full boiling range fluid cracked naphtha stream comprising the steps of:

(a) feeding hydrogen and a full boiling range naphtha feed containing olefins, diolefins, mercaptans, thiophene and other organic sulfur compounds to a distillation column reactor;

(b) concurrently in said distillation column reactor:

(i) reacting a portion of the mercaptans contained within said full boiling range naphtha stream with a portion of the diolefins contained within said full boiling range naphtha stream to produce sulfides and

(ii) separating said full boiling range naphtha stream into three fractions by fractional distillation;

(c) removing product from said distillation column reactor comprising a light naphtha containing substantially no mercaptans, sulfides or other organic sulfur compounds as an overheads;

(d) removing an intermediate naphtha as a side draw from said distillation column reactor containing thiophene, diolefins boiling in the range of thiophene and mercaptans boiling in the range of thiophene;

(e) removing a heavy naphtha from said distillation column reactor containing said sulfides and other organic sulfur compounds as a bottoms;

(f) feeding said intermediate naphtha to a single pass fixed bed reactor containing a hydrodesulfurization catalyst where substantially all of any remaining sulfides and other organic sulfur compounds are reacting with hydrogen to form hydrogen sulfide.